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NEWS 7	FEB 16	INPADOCDB and INPAFAMDB Enriched with New Content and Features
NEWS 8	FEB 16	INSPEC Adding Its Own IPC codes and Author's E-mail Addresses
NEWS 9	APR 02	CAS Registry Number Crossover Limits Increased to 500,000 in Key STN Databases
NEWS 10	APR 02	PATDPAFULL: Application and priority number formats enhanced
NEWS 11	APR 02	DWPI: New display format ALLSTR available
NEWS 12	APR 02	New Thesaurus Added to Derwent Databases for Smooth Sailing through U.S. Patent Codes
NEWS 13	APR 02	EMBASE Adds Unique Records from MEDLINE, Expanding Coverage back to 1948
NEWS 14	APR 07	CA/CAplus CLASS Display Streamlined with Removal of Pre-IPC 8 Data Fields
NEWS 15	APR 07	50,000 World Traditional Medicine (WTM) Patents Now Available in CAplus
NEWS 16	APR 07	MEDLINE Coverage Is Extended Back to 1947

NEWS EXPRESS FEBRUARY 15 10 CURRENT WINDOWS VERSION IS V8.4.2, AND CURRENT DISCOVER FILE IS DATED 15 JANUARY 2010.

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* * * * * * * * * * * * * * * * STN Columbus * * * * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 11:58:43 ON 31 MAY 2010

=> file caplus, agricola
COST IN U.S. DOLLARS

	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.22	0.22

FILE 'CAPLUS' ENTERED AT 11:59:02 ON 31 MAY 2010
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FILE 'AGRICOLA' ENTERED AT 11:59:02 ON 31 MAY 2010

=> s (free (a) fatty (a) acid) (s) (methyl (a) ester) (p) (fatty (a) acid (a) methyl (a) ester)
L1 183 (FREE (A) FATTY (A) ACID) (S) (METHYL (A) ESTER) (P) (FATTY (A) ACID (A) METHYL (A) ESTER)

=> s l1 and (esterification or esterify)
L2 61 L1 AND (ESTERIFICATION OR ESTERIFY)

=> s l1 and (preesterification)
L3 1 L1 AND (PREESTERIFICATION)

=> d l3 ibib abs

L3 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1987:52101 CAPLUS
DOCUMENT NUMBER: 106:52101
ORIGINAL REFERENCE NO.: 106:8621a,8624a
TITLE: Fatty acid methyl esters
INVENTOR(S): Lepper, Herbert; Friesenhagen, Lothar
PATENT ASSIGNEE(S): Henkel K.-G.a.A., Fed. Rep. Ger.
SOURCE: Ger. Offen., 18 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3444893	A1	19860612	DE 1984-3444893	19841208
GB 2168701	A	19860625	GB 1985-28953	19851125
GB 2168701	B	19881130		
EP 184740	A2	19860618	EP 1985-115217	19851130
EP 184740	A3	19870909		
EP 184740	B1	19910306		
R: AT, BE, CH, DE, FR, IT, LI, NL, SE				
AT 61332	T	19910315	AT 1985-115217	19851130
ZA 8509371	A	19860730	ZA 1985-9371	19851206

BR 8506119	A	19860826	BR 1985-6119		19851206
US 4652406	A	19870324	US 1985-806074		19851206
CA 1261870	A1	19890926	CA 1985-497012		19851206
JP 61140544	A	19860627	JP 1985-277773		19851209
JP 06062502	B	19940817			
PRIORITY APPLN. INFO.:			DE 1984-3444893	A	19841208
			EP 1985-115217	A	19851130

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
OTHER SOURCE(S): MARPAT 106:52101
AB Fatty acid Me esters are prepared from natural fats and oils by preesterification of a starting material containing free fatty acids in the presence of an acidic catalyst at 50-120°/1 atm-5 bar, removal of part of the water of condensation from the alc. phase, extraction of the water of condensation from the remaining oil phase with a glycerol-MeOH mixture, and esterification with MeOH in the presence of an alkali catalyst. Thus, coconut oil (acid value 15.1) 174, MeOH 47.4, and p-toluenesulfonic acid 1.6 kg were stirred for 15 min, heated to reflux, cooled to 50°, and the mixture sepd into oil and MeOH phases. The oil phase (204 kg, acid value 0.8, H2O content 0.34%, MeOH content 14.1%) was esterified at 50-55° with 40.8 kg of a mixture containing glycerol 59.0, MeOH 28.1, fat derivative 12.8, and free alkali 0.1%. The two phase mixture was stirred for 10 min, and after stirring a clear phase formed. After removal of the glycerol phase, 196 kg of an oil phase (acid content 0.4, H2O content 0.08, MeOH content 10.6%) remained . The extracted oil phase was stirred with 35 L MeOH and 0.3 kg NaOEt catalyst for 30 min and heated to reflux. The mixture was cooled to 50°, the MeOH-glycerol phase removed, and the unpurified coconut fatty acid Me esters (188 kg) contained glycerin 0.4, H2O 0.02, and MeOH 3.1%, and had acid value <0.04.

OS.CITING REF COUNT:	11	THERE ARE 11 CAPLUS RECORDS THAT CITE THIS RECORD (11 CITINGS)
REFERENCE COUNT:	2	THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d hia
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The following are valid formats:

ABS --------- GI and AB
ALL --------- BIB, AB, IND, RE
APPS -------- AI, PRAI
BIB --------- AN, plus Bibliographic Data and PI table (default)
CAN --------- List of CA abstract numbers without answer numbers
CBIB -------- AN, plus Compressed Bibliographic Data
CLASS ------- IPC, NCL, ECLA, FTERM
DALL -------- ALL, delimited (end of each field identified)
DMAX -------- MAX, delimited for post-processing
FAM --------- AN, PI and PRAI in table, plus Patent Family data
FBIB -------- AN, BIB, plus Patent FAM
IND --------- Indexing data
IPC --------- International Patent Classifications
MAX --------- ALL, plus Patent FAM, RE
PATS -------- PI, SO

```
SAM --------- CC, SX, TI, ST, IT
SCAN -------- CC, SX, TI, ST, IT (random display, no answer numbers;
              SCAN must be entered on the same line as the DISPLAY,
              e.g., D SCAN or DISPLAY SCAN)
STD --------- BIB, CLASS

IABS -------- ABS, indented with text labels
IALL -------- ALL, indented with text labels
IBIB -------- BIB, indented with text labels
IMAX -------- MAX, indented with text labels
ISTD -------- STD, indented with text labels

OBIB -------- AN, plus Bibliographic Data (original)
OIBIB ------- OBIB, indented with text labels

SBIB -------- BIB, no citations
SIBIB ------- IBIB, no citations

HIT --------- Fields containing hit terms
HITIND ------ IC, ICA, ICI, NCL, CC and index field (ST and IT)
              containing hit terms
HITRN ------- HIT RN and its text modification
HITSTR ------ HIT RN, its text modification, its CA index name, and
              its structure diagram
HITSEQ ------ HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
FHITSTR ----- First HIT RN, its text modification, its CA index name, and
              its structure diagram
FHITSEQ ----- First HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
KWIC -------- Hit term plus 20 words on either side
OCC --------- Number of occurrence of hit term and field in which it occurs

To display a particular field or fields, enter the display field
codes.  For a list of the display field codes, enter HELP DFIELDS at
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TI,IND; TI,SO.  You may specify the format fields in any order and the
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All of the formats (except for SAM, SCAN, HIT, HITIND, HITRN, HITSTR,
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'HIS' IS NOT A VALID FORMAT FOR FILE 'CAPLUS'

The following are valid formats:

ABS --------- GI and AB
ALL --------- BIB, AB, IND, RE
APPS -------- AI, PRAI
BIB --------- AN, plus Bibliographic Data and PI table (default)
CAN --------- List of CA abstract numbers without answer numbers
CBIB -------- AN, plus Compressed Bibliographic Data
CLASS ------- IPC, NCL, ECLA, FTERM
DALL -------- ALL, delimited (end of each field identified)
DMAX -------- MAX, delimited for post-processing
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FAM --------- AN, PI and PRAI in table, plus Patent Family data
FBIB -------- AN, BIB, plus Patent FAM
IND --------- Indexing data
IPC --------- International Patent Classifications
MAX --------- ALL, plus Patent FAM, RE
PATS -------- PI, SO
SAM --------- CC, SX, TI, ST, IT
SCAN -------- CC, SX, TI, ST, IT (random display, no answer numbers;
              SCAN must be entered on the same line as the DISPLAY,
              e.g., D SCAN or DISPLAY SCAN)
STD --------- BIB, CLASS

IABS -------- ABS, indented with text labels
IALL -------- ALL, indented with text labels
IBIB -------- BIB, indented with text labels
IMAX -------- MAX, indented with text labels
ISTD -------- STD, indented with text labels

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OIBIB ------- OBIB, indented with text labels

SBIB -------- BIB, no citations
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              containing hit terms
HITRN ------- HIT RN and its text modification
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HITSEQ ------ HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
FHITSTR ----- First HIT RN, its text modification, its CA index name, and
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FHITSEQ ----- First HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
KWIC -------- Hit term plus 20 words on either side
OCC --------- Number of occurrence of hit term and field in which it occurs

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TI,IND; TI,SO.  You may specify the format fields in any order and the
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All of the formats (except for SAM, SCAN, HIT, HITIND, HITRN, HITSTR,
FHITSTR, HITSEQ, FHITSEQ, KWIC, and OCC) may be used with DISPLAY ACC
to view a specified Accession Number.
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'D' IS NOT A VALID FORMAT FOR FILE 'CAPLUS'

The following are valid formats:

ABS --------- GI and AB
ALL --------- BIB, AB, IND, RE
APPS -------- AI, PRAI
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BIB --------- AN, plus Bibliographic Data and PI table (default)
CAN --------- List of CA abstract numbers without answer numbers
CBIB -------- AN, plus Compressed Bibliographic Data
CLASS ------- IPC, NCL, ECLA, FTERM
DALL -------- ALL, delimited (end of each field identified)
DMAX -------- MAX, delimited for post-processing
FAM --------- AN, PI and PRAI in table, plus Patent Family data
FBIB -------- AN, BIB, plus Patent FAM
IND --------- Indexing data
IPC --------- International Patent Classifications
MAX --------- ALL, plus Patent FAM, RE
PATS -------- PI, SO
SAM --------- CC, SX, TI, ST, IT
SCAN -------- CC, SX, TI, ST, IT (random display, no answer numbers;
              SCAN must be entered on the same line as the DISPLAY,
              e.g., D SCAN or DISPLAY SCAN)
STD --------- BIB, CLASS

IABS -------- ABS, indented with text labels
IALL -------- ALL, indented with text labels
IBIB -------- BIB, indented with text labels
IMAX -------- MAX, indented with text labels
ISTD -------- STD, indented with text labels

OBIB -------- AN, plus Bibliographic Data (original)
OIBIB ------- OBIB, indented with text labels

SBIB -------- BIB, no citations
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HITSEQ ------ HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
FHITSTR ----- First HIT RN, its text modification, its CA index name, and
              its structure diagram
FHITSEQ ----- First HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
KWIC -------- Hit term plus 20 words on either side
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an arrow prompt (=>).  Examples of formats include: TI; TI,AU; BIB,ST;
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information will be displayed in the same order as the format
specification.

All of the formats (except for SAM, SCAN, HIT, HITIND, HITRN, HITSTR,
FHITSTR, HITSEQ, FHITSEQ, KWIC, and OCC) may be used with DISPLAY ACC
to view a specified Accession Number.
ENTER DISPLAY FORMAT (BIB):bib
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L3   ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2010 ACS on STN
AN   1987:52101  CAPLUS
DN   106:52101
OREF 106:8621a,8624a
TI   Fatty acid methyl esters
IN   Lepper, Herbert; Friesenhagen, Lothar
PA   Henkel K.-G.a.A., Fed. Rep. Ger.
SO   Ger. Offen., 18 pp.
     CODEN: GWXXBX
DT   Patent
LA   German
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ----------------    ----   --------    --------------------   --------
PI   DE 3444893          A1     19860612    DE 1984-3444893        19841208
     GB 2168701          A      19860625    GB 1985-28953          19851125
     GB 2168701          B      19881130
     EP 184740           A2     19860618    EP 1985-115217         19851130
     EP 184740           A3     19870909
     EP 184740           B1     19910306
         R:  AT, BE, CH, DE, FR, IT, LI, NL, SE
     AT 61332            T      19910315    AT 1985-115217         19851130
     ZA 8509371          A      19860730    ZA 1985-9371           19851206
     BR 8506119          A      19860826    BR 1985-6119           19851206
     US 4652406          A      19870324    US 1985-806074         19851206
     CA 1261870          A1     19890926    CA 1985-497012         19851206
     JP 61140544         A      19860627    JP 1985-277773         19851209
     JP 06062502         B      19940817
PRAI DE 1984-3444893     A      19841208
     EP 1985-115217      A      19851130
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
OS   MARPAT 106:52101
OSC.G   11    THERE ARE 11 CAPLUS RECORDS THAT CITE THIS RECORD (11 CITINGS)
RE.CNT  2     THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT


=> d his

     (FILE 'HOME' ENTERED AT 11:58:43 ON 31 MAY 2010)

     FILE 'CAPLUS, AGRICOLA' ENTERED AT 11:59:02 ON 31 MAY 2010
L1          183 S (FREE (A) FATTY (A) ACID) (S) (METHYL (A) ESTER) (P) (FATTY (
L2           61 S L1 AND (ESTERIFICATION OR ESTERIFY)
L3            1 S L1 AND (PREESTERIFICATION)

=> s (fat or oil) (3w) (free (a) fatty (a) acid) (3w) alcohol (9w) (methyl (3a)
ester) (p) (fatty (a) acid (a) methyl (a) ester)
L4            0 (FAT OR OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHOL (9W)
                (METHYL (3A) ESTER) (P) (FATTY (A) ACID (A) METHYL (A) ESTER)

=> s (soybean (2a) oil) (3w) (free (a) fatty (a) acid) (3w) alcohol (9w) (methyl
(3a) ester) (p) (fatty (a) acid (a) methyl (a) ester)
L5            0 (SOYBEAN (2A) OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHOL
                (9W) (METHYL (3A) ESTER) (P) (FATTY (A) ACID (A) METHYL (A) ESTE
                R)
```

```
=> s esterification (s) (reflux) (s) (fatty (2a) acid (2a) methyl (2a) ester)
L6            1 ESTERIFICATION (S) (REFLUX) (S) (FATTY (2A) ACID (2A) METHYL
                (2A) ESTER)

=> d l6 ibib abs

L6   ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER:         2009:953536  CAPLUS
DOCUMENT NUMBER:          151:303779
TITLE:                    Gas chromatography-mass spectrometry combined method
                          for analyzing fatty acid components in Periploca
                          sepium
INVENTOR(S):              Li, Li; Tong, Ling; Zhou, Shuiping; Gao, Jun; Ma, Jie;
                          Bi, Kaishun
PATENT ASSIGNEE(S):       Tianjin Tasly Pharmaceutical Co., Ltd., Peop. Rep.
                          China
SOURCE:                   Faming Zhuanli Shenqing Gongkai Shuomingshu, 11pp.
                          CODEN: CNXXEV
DOCUMENT TYPE:            Patent
LANGUAGE:                 Chinese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ----------          ----   --------    -------------------    --------
     CN 101498702         A     20090805    CN 2008-10006406       20080202
PRIORITY APPLN. INFO.:                     CN 2008-10006406       20080202
AB   The title method comprises pulverizing Periploca sepium, extracting with
     petroleum ether having boiling range of 60-90° under reflux
     for 6-10 h, filtering, and concentrating under reduced pressure to obtain fatty
     acid extract, subjecting the fatty acid extract to Me esterification,
     and determining Me esters of fatty acids
     by gas chromatog.-mass spectrometry (GC-MS) under GC conditions of silica
     capillary as chromatog. column, high-purity helium gas as carrier gas,
     temperature of injection port 230-270°, split ratio of (8:1)(12:1), and
     flow rate of 0.8-1.2 mL/min-1 and MS conditions of EI ion source,
     quadrupole temperature of 120-170°, temperature of transfer line of
     270-310°, and voltage of multiplier tube of 1800-2200 V, and GC-MS
     interface temperature of 210-250°.  The inventive method has the
     advantages of high accuracy and high reliability.


=> d his

     (FILE 'HOME' ENTERED AT 11:58:43 ON 31 MAY 2010)

     FILE 'CAPLUS, AGRICOLA' ENTERED AT 11:59:02 ON 31 MAY 2010
L1          183 S (FREE (A) FATTY (A) ACID) (S) (METHYL (A) ESTER) (P) (FATTY (
L2           61 S L1 AND (ESTERIFICATION OR ESTERIFY)
L3            1 S L1 AND (PREESTERIFICATION)
L4            0 S (FAT OR OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHOL (9W)
L5            0 S (SOYBEAN (2A) OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHO
L6            1 S ESTERIFICATION (S) (REFLUX) (S) (FATTY (2A) ACID (2A) METHYL

=> s (soybean (a) oil) (s) methanol (s) (fatty (2w) acid (2w) methyl (2w) ester)
(p) (fatty (2w) acid (2w) alkyl (2w) ester)
L7            0 (SOYBEAN (A) OIL) (S) METHANOL (S) (FATTY (2W) ACID (2W) METHYL
```

(2W) ESTER) (P) (FATTY (2W) ACID (2W) ALKYL (2W) ESTER)

```
=> d his

     (FILE 'HOME' ENTERED AT 11:58:43 ON 31 MAY 2010)

     FILE 'CAPLUS, AGRICOLA' ENTERED AT 11:59:02 ON 31 MAY 2010
L1          183 S (FREE (A) FATTY (A) ACID) (S) (METHYL (A) ESTER) (P) (FATTY (
L2           61 S L1 AND (ESTERIFICATION OR ESTERIFY)
L3            1 S L1 AND (PREESTERIFICATION)
L4            0 S (FAT OR OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHOL (9W)
L5            0 S (SOYBEAN (2A) OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHO
L6            1 S ESTERIFICATION (S) (REFLUX) (S) (FATTY (2A) ACID (2A) METHYL
L7            0 S (SOYBEAN (A) OIL) (S) METHANOL (S) (FATTY (2W) ACID (2W) METH

=> s (seed (3a) oil) (s) methanol (s) (alkyl (4w) ester) (p) (fatty (w) acid (w)
methyl (w) ester?)
L8            1 (SEED (3A) OIL) (S) METHANOL (S) (ALKYL (4W) ESTER) (P) (FATTY
                (W) ACID (W) METHYL (W) ESTER?)

=> d l8 ibib abs

L8   ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER:         2005:595941  CAPLUS
DOCUMENT NUMBER:          143:268697
TITLE:                    Transesterification process and installation for
                          producing high-purity fatty acid alkyl esters from
                          aliphatic alcohols and triglycerides
INVENTOR(S):              Oprescu, Ion; Racz, Peter Attila; Toc, Eugenia; Toc,
                          Valer; Zamfirache, Octavian Radu
PATENT ASSIGNEE(S):       Rom.
SOURCE:                   Rom., 10 pp.
                          CODEN: RUXXA3
DOCUMENT TYPE:            Patent
LANGUAGE:                 Romanian
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     --------------      ----   --------    -------------------    --------
     RO 119828            B1    20050429    RO 2002-951            20020704
PRIORITY APPLN. INFO.:                      RO 2002-951            20020704
AB   A process and an installation for producing high-purity fatty acid lower
     alkyl esters (e.g., fatty acid
     Me esters) from triglycerides (e.g., rape seed
     oil) and lower aliphatic alcs. (e.g., methanol) are
     described and a process flow diagram presented.


=> s (fatty (w) acid (w) methyl (w) ester#) (6s) reflux?
L9           65 (FATTY (W) ACID (W) METHYL (W) ESTER#) (6S) REFLUX?

=> s l9 and (esterification or preesterification or esterify)
L10          10 L9 AND (ESTERIFICATION OR PREESTERIFICATION OR ESTERIFY)

=> d l10 1-10 ibib abs
```

L10 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2009:1383923 CAPLUS
DOCUMENT NUMBER: 152:149216
TITLE: Transesterification of soybean oil to biodiesel catalyzed by mesostructured Ta2O5-based hybrid catalysts functionalized by both alkyl-bridged organosilica moieties and Keggin-type heteropoly acid
AUTHOR(S): Xu, Leilei; Li, Wei; Hu, Jianglei; Li, Kexin; Yang, Xia; Ma, Fengyan; Guo, Yingna; Yu, Xiaodan; Guo, Yihang
CORPORATE SOURCE: School of Chemistry, Northeast Normal University, Changchun, 130024, Peop. Rep. China
SOURCE: Journal of Materials Chemistry (2009), 19(45), 8571-8579
CODEN: JMACEP; ISSN: 0959-9428
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A series of Ta2O5-based hybrid catalysts functionalized by both alkyl-bridged organosilica fragments and the Keggin-type heteropoly acid, Ta2O5/Si(R)Si-H3PW12O40 (R = -CH2CH2- or -C6H4-), were prepared via a one-pot co-condensation method in the presence of a triblock copolymer surfactant. The materials were well characterized by spectroscopy methods, X-ray diffraction anal., transmission electron microscopy, and nitrogen physisorption measurement to confirm the structural integrity of the Keggin unit and alkyl-bridged organosilica units in the hybrid materials, to investigate the interaction between the Ta2O5 matrix and the organic or inorg. functionalities, and to test the mesostructure, morphol., and porosity of the materials. The materials were subsequently utilized as environmentally-friendly solid acid catalysts in the transesterification of soybean oil (containing 20 wt% myristic acid) with methanol to produce fatty acid Me esters under atmospheric refluxing. Compared with bulk H3PW12O40 and alkyl-free H3PW12O40/Ta2O5, as-prepared Ta2O5/Si(R)Si-H3PW12O40 hybrid materials with suitable concns. of bridging alkyl groups exhibited higher reactivity toward the target reaction. This enhanced acid-catalytic reactivity after the introduction of both acidic and hydrophobic functionalities within the Ta2O5 matrix is discussed. Finally, the reusability of the hybrid materials was evaluated through three catalytic runs.
REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2007:921399 CAPLUS
DOCUMENT NUMBER: 147:324913
TITLE: Method for preparing biodiesel oil from high-acid-value waste grease in presence of titanium tetrachloride catalyst
INVENTOR(S): Yuan, Yu; Feng, Xuan; Tao, Yihua
PATENT ASSIGNEE(S): Yangzhou University, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 12pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 101016472	A	20070815	CN 2007-10020053	20070209
CN 100510010	C	20090708		

PRIORITY APPLN. INFO.: CN 2007-10020053 20070209

AB The title method comprises (1) adding activated carbon to waste grease at a weight ratio of 0.5-1.5%, and pretreating at high temperature and normal pressure, (2) adding the pretreated waste grease, methanol, and titanium tetrachloride at a weight ratio of 1:(0.2-0.4):(0.01-0.1) to a reactor, homogeneously mixing, heating under normal pressure to 35-70°C, stirring at the temperature for 3-8 h while refluxing, and leaving still, and (3) distilling the upper layer at 65-70°C and normal pressure to remove residual methanol and obtain higher fatty acid Me ester containing titanium tetrachloride, washing till pH is 7, filtering to remove impurities, and drying. The method has the advantages of simple process, simultaneous esterification and transesterification, little pollution, no saponification, high yield, and high product quality.

L10 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2007:181571 CAPLUS
DOCUMENT NUMBER: 146:298166
TITLE: Method for manufacturing biodiesel fuel from nonedible wood plant oil and waste edible oil by esterification and transesterification
INVENTOR(S): Zeng, Zheling
PATENT ASSIGNEE(S): Nanchang University, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 9pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1912057	A	20070214	CN 2006-10020021	20060816

PRIORITY APPLN. INFO.: CN 2006-10020021 20060816

AB A method comprises mixing the 2 types of oil at ratio C8-12:0:C14-24:0:C18-24:1-3 (30-40):(6-10):(50-64), adding methanol at oil/alc. ratio 1:(0.12-0.34) and 2-6% acidic cation exchange resin, esterifying and refluxing at 55°-95° for 1-3 h, filtering to remove the exchange resin, centrifuging the filtrate to remove water, sending the oil-methanol mixture to transesterification, adding 1.5-3.5% foamed porous compound metal oxide catalyst, refluxing for 2-4 h at 55°-75°, filtering to remove the catalyst, centrifuging to obtain a methanol-water-glycerol mixture and a methanol-fatty acid Me ester mixture, distilling methanol-water-glycerol mixture to obtain glycerol, and distilling the methanol-fatty acid Me ester mixture to remove methanol to obtain fatty acid Me ester (biodiesel fuel).

L10 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2006:840613 CAPLUS

DOCUMENT NUMBER: 145:316933
TITLE: Method for preparing biologic diesel oil with low viscosity and good low temperature performance by using halophyte seeds as raw material
INVENTOR(S): Shi, Hongqi; Miao, Jinlai; Li, Guangyou
PATENT ASSIGNEE(S): First Institute of Oceanography, State Oceanic Administration, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 7pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1696247	A	20051116	CN 2005-10043766	20050608
CN 1293167	C	20070103		
PRIORITY APPLN. INFO.:			CN 2005-10043766	20050608

AB The title biol. diesel oil is prepared from seeds of halophyte (such as Suaeda salsa, Salicornia biglovii, etc) by drying, crushing, mixing with short chain alc. (such as methanol or ethanol) under vigorously stirring at room temperature to obtain mixed suspension; carrying out esterification reaction in the presence of boron trifluoride catalyst under stirring and refluxing at 50-78 °C for 60-120 min; cooling to below 40 °C, filtering; distilling filtrate at normal pressure to recover alc. for reusing; standing residue at room temperature for 90-150 min to obtain upper phase containing fatty acid Me ester and fatty acid Et ester and lower phase containing crude glycerin; vacuum distilling the obtained upper phase to remove alc. to obtain final product. The obtained biol. diesel oil has low viscosity and good low temperature performance.

L10 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2006:313551 CAPLUS
DOCUMENT NUMBER: 145:10079
TITLE: Production of biodiesel from sewer oil and methanol
INVENTOR(S): Wang, Jianye; Chen, Qingfu
PATENT ASSIGNEE(S): Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 5 pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1746264	A	20060315	CN 2005-10010378	20050928
PRIORITY APPLN. INFO.:			CN 2005-10010378	20050928

AB The title process comprises: (1) allowing reflux of refined sewer oil and methanol at 70-80° for 5-10 h in the presence of catalyst; and (2) standing for 1-3 h, and phase separating to upper light component phase (fatty acid Me ester) and lower heavy component phase (glycerin and excess methanol). The weight ratio of refined sewer oil to methanol is 100 : 13-40, and the weight ratio

of catalyst to refined sewer oil is 0.5-3.5:100. The catalyst is composite acid of H2SO4 and benzenesulfonic acid. The light component phase is distilled at 65-70° and normal pressure to remove residual methanol, and further vacuum distilled to remove residual methanol if needed. The heavy component phase is distilled at 65-70° and normal pressure to recovery methanol. The process for refining sewer oil comprises filtering at 10-50°, dewatering at 105-120° and normal pressure or dewatering at 750 mmHg and 500-100°, and decoloring and further purifying with active white clay. The weight ratio of active white clay to sewer oil is 2-6:100.

L10 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1991:81044 CAPLUS
DOCUMENT NUMBER: 114:81044
ORIGINAL REFERENCE NO.: 114:13817a,13820a
TITLE: Process for producing fatty-acid lower-alkyl monoesters
INVENTOR(S): Klok, Robbert; Verveer, Herbert Hendrik
PATENT ASSIGNEE(S): Unilever N. V., Neth.; Unilever PLC
SOURCE: Eur. Pat. Appl., 6 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
EP 391485	A1	19901010	EP 1990-200794		19900403
EP 391485	B1	19931229			
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE					
AU 9052926	A	19901011	AU 1990-52926		19900403
JP 03200743	A	19910902	JP 1990-88993		19900403
US 5116546	A	19920526	US 1990-503656		19900403
AT 99280	T	19940115	AT 1990-200794		19900403
ES 2062293	T3	19941216	ES 1990-200794		19900403
CA 2013865	A1	19901005	CA 1990-2013865		19900404
PRIORITY APPLN. INFO.:			EP 1989-105947	A	19890405
			EP 1990-200794	A	19900403

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Claimed is a process for producing fatty acid lower alkyl monoesters which comprises a first esterification step (1) wherein one or more fatty acid glycerol esters and a monohydric lower alc. are reacted in the presence of a suitable catalyst to produce a mixture comprising fatty acid lower alkyl monoesters, fatty acid glycerol esters and glycerol, a separation step (2) wherein said mixture produced in step (1) is separated into a glycerol-rich fraction (a) and a fraction (b) rich in fatty acid lower alkyl monoester, and a recovery step (4) wherein said fatty-acid lower alkyl monoesters are recovered from said fraction (b), characterized by a second esterification step (3) in which before said recovery step (4) substantially all glycerol and fatty acid glycerol esters of said fraction (b) are esterified to the corresponding fatty acid glycerol triesters. A mixture of 40 kg of soybean oil and 6.2 kg methanol was heated to 65° under refluxing conditions. To this mixture 0.95 kg of a 30 weight% solution of sodium methoxide in methanol was added. After 1.5 h reaction time the mixture was allowed to settle for about 1 h. After

settling the resulting two layers were separated yielding 4.9 kg of a glycerol-rich fraction and about 41.3 kg of a fraction rich in fatty acid methyl ester.
Subsequently, a further 0.2 kg of a 30 weight% solution of sodium methoxide in methanol was added to the methyl ester fraction, and the methanol was distilled off under vacuum while raising the temperature slowly to 80°. To remove the methanol completely nitrogen stripping was applied. The mixture was then washed with about 3.5 L of water at 40°. Subsequently, the lower layer was separated, about 38 kg of a clear methyl ester layer remained. The methyl ester fraction was stirred for 5 min with 1% of a conventional bleaching earth and then filtered. After filtration 35.7 kg of methyl ester fraction was obtained.

OS.CITING REF COUNT: 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS RECORD (10 CITINGS)

L10 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1987:52101 CAPLUS
DOCUMENT NUMBER: 106:52101
ORIGINAL REFERENCE NO.: 106:8621a,8624a
TITLE: Fatty acid methyl esters
INVENTOR(S): Lepper, Herbert; Friesenhagen, Lothar
PATENT ASSIGNEE(S): Henkel K.-G.a.A., Fed. Rep. Ger.
SOURCE: Ger. Offen., 18 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3444893	A1	19860612	DE 1984-3444893	19841208
GB 2168701	A	19860625	GB 1985-28953	19851125
GB 2168701	B	19881130		
EP 184740	A2	19860618	EP 1985-115217	19851130
EP 184740	A3	19870909		
EP 184740	B1	19910306		
R: AT, BE, CH, DE, FR, IT, LI, NL, SE				
AT 61332	T	19910315	AT 1985-115217	19851130
ZA 8509371	A	19860730	ZA 1985-9371	19851206
BR 8506119	A	19860826	BR 1985-6119	19851206
US 4652406	A	19870324	US 1985-806074	19851206
CA 1261870	A1	19890926	CA 1985-497012	19851206
JP 61140544	A	19860627	JP 1985-277773	19851209
JP 06062502	B	19940817		
PRIORITY APPLN. INFO.:			DE 1984-3444893 A	19841208
			EP 1985-115217 A	19851130

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
OTHER SOURCE(S): MARPAT 106:52101
AB Fatty acid Me esters are prepared from natural fats and oils by preesterification of a starting material containing free fatty acids in the presence of an acidic catalyst at 50-120°/1 atm-5 bar, removal of part of the water of condensation from the alc. phase, extraction of the water of condensation from the remaining oil phase with a glycerol-MeOH mixture, and esterification with MeOH in the presence of an alkali catalyst. Thus, coconut oil (acid value 15.1) 174, MeOH 47.4, and p-toluenesulfonic acid 1.6 kg were stirred for

15 min, heated to reflux, cooled to 50°, and the mixture
sepd into oil and MeOH phases. The oil phase (204 kg, acid value 0.8, H2O
content 0.34%, MeOH content 14.1%) was esterified at 50-55° with
40.8 kg of a mixture containing glycerol 59.0, MeOH 28.1, fat derivative 12.8,
and
free alkali 0.1%. The two phase mixture was stirred for 10 min, and after
stirring a clear phase formed. After removal of the glycerol phase, 196
kg of an oil phase (acid content 0.4, H2O content 0.08, MeOH content
10.6%) remained . The extracted oil phase was stirred with 35 L MeOH and 0.3
kg NaOEt catalyst for 30 min and heated to reflux. The mixture
was cooled to 50°, the MeOH-glycerol phase removed, and the
unpurified coconut fatty acid Me
esters (188 kg) contained glycerin 0.4, H2O 0.02, and MeOH 3.1%,
and had acid value <0.04.
OS.CITING REF COUNT: 11 THERE ARE 11 CAPLUS RECORDS THAT CITE THIS
RECORD (11 CITINGS)
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1980:179158 CAPLUS
DOCUMENT NUMBER: 92:179158
ORIGINAL REFERENCE NO.: 92:29015a,29018a
TITLE: GLC analysis of edible oils and fats
AUTHOR(S): Eyres, Laurence
CORPORATE SOURCE: Abels Ltd., Auckland, N. Z.
SOURCE: Chemistry in New Zealand (1979), 43(6), 237-9
CODEN: CMNZAA; ISSN: 0009-3076
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Fatty acid Me esters were prepared
by transesterification with NaOMe or Me4NOH or by refluxing the
saponified fat with MeOH-H2SO4-NH4Cl. The Me esters were separated on a 2 m x
1.6 mm column of 10% Silar 5cP on 100-20 mesh Gas Chrom Q with 10 mL N/min
and temperature programming from 195 to 220°. Hexyl heptadecanoate
[42232-38-2], b. 208°, was prepared by esterification with
Amberlite IR-120 catalyst for use as internal standard Triglycerides were gas
chromatographed on 0.5 m x 1.6 mm columns of 3% OV-1 on 100-20 mesh Gas
Chrom Q with 20 mL N/min and temperature programming from 150 to 360° at
10°/min. Glyceryl triheptadecanoate was used as internal standard

L10 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1973:138187 CAPLUS
DOCUMENT NUMBER: 78:138187
ORIGINAL REFERENCE NO.: 78:22203a,22206a
TITLE: Use of hydrochloride for the esterification
of liquid and hydrogenated fats
AUTHOR(S): Krasnodebski, Piotr
CORPORATE SOURCE: Inst. Przem. Tluszczowego, Warsaw, Pol.
SOURCE: Tluszcze Jadalne (1972), 16(5), 255-63
CODEN: TLJAAR; ISSN: 0371-9227
DOCUMENT TYPE: Journal
LANGUAGE: Polish
AB Methanolic BF3 was replaced by methanolic hydrogen chloride [7647-01-0]
for preparing fatty acid Me esters
(for gas chromatog. analysis of the acids). Rapeseed oil was saponified with
methanolic KOH and then esterified by refluxing 10 min in MeOH

containing 4% HCl. The Me esters were separated from unreacted fatty acids by thin-layer chromatog. using 9.3:0.7 C6H6-Et2O.

L10 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1961:121802 CAPLUS
DOCUMENT NUMBER: 55:121802
ORIGINAL REFERENCE NO.: 55:22906f-i
TITLE: Plasticizers and gelation agents
INVENTOR(S): Stein, Werner; Offermann, Willi
PATENT ASSIGNEE(S): DEHYDAG Deutsche Hydrierwerke G. m. b. H.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 973398		19600211	DE 1954-D17883	19540529

AB Higher-mol.-weight fatty acids with at least 2 double bonds (especially linoleic, linolenic, or corresponding natural acid mixts.) are treated with 2 moles maleic anhydride (or fumaric, acetylenedicarboxylic, or acrylic acid). These compds. are esterified with aliphatic, cycloaliphatic, aromatic, or heterocyclic C1-8 alcs. Such esters, in amts. of 5-40%, are plasticizers with good gelling properties, especially for polyvinyl and polyvinylene compds., and have good resistance to organic solvents, oils, and H2O. Furthermore, they have little migration tendency and volatility. If natural fatty acids are used, separation of the accompanying esters by selective extraction or distillation is necessary. For example, 560 g. soybean-oil fatty acid (acid number 202, saponification number 203, I number 133) was treated with 294 g. maleic anhydride for 3 hrs. at 220-30° under CO2. This reaction product 530, MeOH 800, and H2SO4 45 g. was esterified for 70 hrs. The MeOH-H2O vapor was rectified and MeOH refluxed. The separated ester mixture was distilled to remove di-Me maleate and fatty acid Me esters. Steam-vacuum distillation removed the ester containing only 1 mole maleic acid/mole oleic acid (b1 200-20°). At 220-40° and 1 mm., the plasticizing ester distilled off.

=> d his

(FILE 'HOME' ENTERED AT 11:58:43 ON 31 MAY 2010)

FILE 'CAPLUS, AGRICOLA' ENTERED AT 11:59:02 ON 31 MAY 2010
L1 183 S (FREE (A) FATTY (A) ACID) (S) (METHYL (A) ESTER) (P) (FATTY (
L2 61 S L1 AND (ESTERIFICATION OR ESTERIFY)
L3 1 S L1 AND (PREESTERIFICATION)
L4 0 S (FAT OR OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHOL (9W)
L5 0 S (SOYBEAN (2A) OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHO
L6 1 S ESTERIFICATION (S) (REFLUX) (S) (FATTY (2A) ACID (2A) METHYL
L7 0 S (SOYBEAN (A) OIL) (S) METHANOL (S) (FATTY (2W) ACID (2W) METH
L8 1 S (SEED (3A) OIL) (S) METHANOL (S) (ALKYL (4W) ESTER) (P) (FATT
L9 65 S (FATTY (W) ACID (W) METHYL (W) ESTER#) (6S) REFLUX?

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L10          10 S L9 AND (ESTERIFICATION OR PREESTERIFICATION OR ESTERIFY)

=> s (FATTY (W) ACID (W) METHYL (W) ESTER#) (6S) solvent
L11         595 (FATTY (W) ACID (W) METHYL (W) ESTER#) (6S) SOLVENT

=> d l11 1 ibib abs

L11  ANSWER 1 OF 595  CAPLUS  COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER:        2010:661766  CAPLUS
TITLE:                   Study on preparing for sodium α - sulfo fatty
                         acid methyl ester (MES) with chlorosulfonic acid
AUTHOR(S):               Liu, Da; Xue, Wei; Yang, Song; Jin, Lin-hang; Wang,
                         Rui; Gao, Liang
CORPORATE SOURCE:        Research and Development Center for Fine Chemicals,
                         Guizhou University, Guizhou, Guiyang, 550025, Peop.
                         Rep. China
SOURCE:                  Guangzhou Huagong (2010), 38(3), 62-64
                         CODEN: GUHUEZ; ISSN: 1001-9677
PUBLISHER:               Guangzhou Huagong Bianjibu
DOCUMENT TYPE:           Journal
LANGUAGE:                Chinese
AB   A new technique on preparing of sodium α - sulfo palm  fatty
     acid Me ester(MES) with chlorosulfonic acid as
     sulfonating agent was introduced.  The specific method was Me palmitate as
     raw material, under solvent - free condition, MES was obtained
     through sulfonation reaction, aging reaction, and then neutralization,
     drying post - processing.  The best preparation conditions was got through the
     orthogonal optimization expts. and repetitive tests, as follows: the amount
     of substance ratio 1: 1.2, the sulfonation time 60min, the aging time
     35min, the nitrogen flow 42 L/h, and active products content of 62%
     .apprx.65%.


=> s (fatty (w) acid (w) methyl (w) ester?) (9a) solvent?
L12         136 (FATTY (W) ACID (W) METHYL (W) ESTER?) (9A) SOLVENT?

=> s l12 1 ibib abs
MISSING OPERATOR L12 1 IBIB
The search profile that was entered contains terms or
nested terms that are not separated by a logical operator.

=> d l12 1 ibib abs

L12  ANSWER 1 OF 136  CAPLUS  COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER:        2010:601918  CAPLUS
TITLE:                   New method and apparatus for recovering organic
                         solvent from waste gas by combining conventional
                         absorption with conventional adsorption
INVENTOR(S):             Ma, Jun
PATENT ASSIGNEE(S):      Peop. Rep. China
SOURCE:                  Faming Zhuanli Shenqing Gongkai Shuomingshu, 6pp.
                         CODEN: CNXXEV
DOCUMENT TYPE:           Patent
LANGUAGE:                Chinese
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:
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PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 101703869	A	20100512	CN 2009-10209779	20091028

PRIORITY APPLN. INFO.: CN 2009-10209779 20091028

AB The title method comprises: 1) sprinkling absorbent to absorb organic solvent from waste gas; 2) selectively absorb organic solvent from absorbent by use of mol. sieve; and 3) heating mol. sieve to recover organic solvent. When the organic solvent is methanol, the absorbent is ethylene glycol Ph ether, and the mol. sieve is high-silicon ZSM-5 zeolite. When the organic solvent is DMAC, the absorbent is water, and the mol. sieve is high-silicon BETA zeolite. When the organic solvent is butanone, the absorbent is water, and the mol. sieve is high-silicon ZSM-5 zeolite. When the organic solvent is toluene, the absorbent is high-boiling organic solvent such as N-Me pyrrolidone, fatty acid Me ester, white oil, ethylene glycol Ph ether acetate or other plasticizer, and the mol. sieve has a diameter larger than that of organic solvent to be separated and less than that of high-boiling organic solvent. The title apparatus comprises an absorption tower equipped with two layers of sprinklers, two or more adsorption tanks filled with mol. sieve, a heating-regenerating unit. The title method and apparatus can be used to save much energy, and solve the problems of large energy consumption due to absorption of organic solvent by conventional absorption method and difficult regeneration after adsorption.

=> s (fat or oil) (5a) methanol (s) (acid (4w) catalyst) (p) (fatty (w) acid (w) methyl (w) ester?)
L13 20 (FAT OR OIL) (5A) METHANOL (S) (ACID (4W) CATALYST) (P) (FATTY (W) ACID (W) METHYL (W) ESTER?)

=> s l13 and l12
L14 0 L13 AND L12

=> d l13 1 ibib abs

L13 ANSWER 1 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2010:506414 CAPLUS
DOCUMENT NUMBER: 152:528802
TITLE: Two-step method for producing biodiesel using solid acid/base catalysts
INVENTOR(S): Pan, Lijun; Zhang, Fujian; Jiang, Shaotong; Luo, Shuizhong; Meng, Jun; Liu, Xinxin
PATENT ASSIGNEE(S): Hefei University of Technology, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 8pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 101696372	A	20100421	CN 2009-10185245	20091103

PRIORITY APPLN. INFO.: CN 2009-10185245 20091103

AB Title method comprises: (1) pre-treating the grease rich in free fatty

acids through centrifugation and dehydration; (2) mixing the grease and methanol at a mol. ratio of 1:(9-20), adding a solid acid catalyst (1.5-4% of the grease), conducting a reaction in a 60-80° reaction kettle for 2-5 h to esterify the free fatty acids, centrifuging to remove the catalyst, standing for demixing, collecting the oil phase, and recovering the methanol phase; and (3) introducing the oil phase into a reaction kettle, adding methanol (oil phase/ methanol mol. ratio = 1:(6-12)) and a solid base catalyst (1-5% of the grease), conducting a reaction 60-80° for 1.5-2.5 h for the transesterification of the triglycerides into the fatty acid Me esters, removing the solid base catalyst, standing for demixing, collecting the fatty acid Me ester phase, and evaporating to remove methanol and obtain the biodiesel. In step 1, the grease rich in free fatty acids is catering waste oil, leached oil of oil tailings, or acidified oil of soap tailings. In step 2, the solid acid catalyst is zirconium sulfate tetrahydrate, ferric sulfate, or a loaded solid acid catalyst with zirconium sulfate tetrahydrate or ferric sulfate as the active species. The solid acid catalyst is manufactured by: dissolving zirconium sulfate or ferric sulfate 30-40 parts in distilled water 100 weight parts, adding a carrier 100 parts, stirring at 60° for 1.5-2 h, drying at 100°, and torrefying at 500-600° for 4-6 h. The carrier is Al2O3, diatomite, silica gel or a mol. sieve. The method has advantages of wide raw material resources, low cost, no wastewater discharge, and no environmental pollution. The solid catalysts have the advantages of wide raw material resources, low cost, and high catalytic efficiency.

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=> s l13 and solvent
L15          2 L13 AND SOLVENT

=> d l15 1-2 ibib abs

L15  ANSWER 1 OF 2  CAPLUS  COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER:        2009:1155568  CAPLUS
TITLE:                   Preparation of biodiesel from Jatropha curcas L. oil
                         by solid acid catalyst
AUTHOR(S):               Liu, Jian; Kong, Qiong-yu
CORPORATE SOURCE:        Appraisal Center of Environment Engineering, Hunan
                         Environmental Protection Bureau, Changsha, 410007,
                         Peop. Rep. China
SOURCE:                  Changsha Ligong Daxue Xuebao, Ziran Kexueban (2009),
                         6(2), 92-96
                         CODEN: CLDXBG; ISSN: 1672-9331
PUBLISHER:               Changsha Ligong Daxue Xuebao Bianjibu
DOCUMENT TYPE:           Journal
LANGUAGE:                Chinese
AB   The objective of the paper is to obtain transesterification of Jatropha
     oil with higher free fatty acids, using SO42-/TiO2-Al2O3 as a solid acid
     catalyst instead of traditional liquid acid and alkali catalysts. The
     effects of mixing speed, solid acid catalyst dosage,
     methanol/oil molar ratio, reaction temperature, co-
     solvent on the reaction were studied. The exptl. results indicate
     that the solid acid catalyst of SO42-/TiO2-Al2O3 had a higher reactivity
     and stability on the transesterification of Jatropha oil. Under the
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transesterification conditions of reaction temperature 130°C, methanol/oil molar ratio 15:1, solid acid catalyst dosage 4%, mixing speed 480 r/min, co-solvent hexane/oil weight ratio 1:4, reaction time 3h, Me ester of Jatropha oil fatty acids content could reach 97.6%. The fatty acid Me ester content remained 90% after the solid acid catalyst was recycled ten times. The fuel properties of Jatropha biodiesel obtained met the national BD100 standard

L15 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2007:708004 CAPLUS
DOCUMENT NUMBER: 147:238558
TITLE: Acid-Catalyzed Transesterification of Canola Oil to Biodiesel under Single- and Two-Phase Reaction Conditions
AUTHOR(S): Ataya, Fadi; Dube, Marc A.; Ternan, Marten
CORPORATE SOURCE: Department of Chemical Engineering, Centre for Catalysis Research and Innovation, University of Ottawa, Ottawa, ON, K1N 6N5, Can.
SOURCE: Energy & Fuels (2007), 21(4), 2450-2459
CODEN: ENFUEM; ISSN: 0887-0624
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Expts. were performed at ambient temperature to investigate the effects of mass transfer during the transesterification reaction of canola oil with methanol (MeOH) to form fatty acid Me esters using a sulfuric acid (H2SO4) catalyst at a MeOH/oil molar ratio of 6:1. Expts. at ambient conditions resulted in reaction rates that were slow enough to permit the effects of mass transfer on the transesterification reaction to become more evident than at higher temps. For the two-phase expts., it was postulated that the reaction occurred at the interface between the phases where the triglycerides (TG), MeOH, and H2SO4 were in contact with one another. The influence of mass transfer was investigated by (a) comparing a mixed vs. quiescent two-phase reaction and (b) changing a two-phase reaction to a single-phase reaction through the addition of a solvent , THF. The expts. revealed the presence of an induction period prior to the initiation of the reaction, and some of the factors influencing the induction period were identified.
OS.CITING REF COUNT: 16 THERE ARE 16 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)
REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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(FILE 'HOME' ENTERED AT 11:58:43 ON 31 MAY 2010)

FILE 'CAPLUS, AGRICOLA' ENTERED AT 11:59:02 ON 31 MAY 2010
L1 183 S (FREE (A) FATTY (A) ACID) (S) (METHYL (A) ESTER) (P) (FATTY (
L2 61 S L1 AND (ESTERIFICATION OR ESTERIFY)
L3 1 S L1 AND (PREESTERIFICATION)
L4 0 S (FAT OR OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHOL (9W)
L5 0 S (SOYBEAN (2A) OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHO
L6 1 S ESTERIFICATION (S) (REFLUX) (S) (FATTY (2A) ACID (2A) METHYL

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L7            0 S (SOYBEAN (A) OIL) (S) METHANOL (S) (FATTY (2W) ACID (2W) METH
L8            1 S (SEED (3A) OIL) (S) METHANOL (S) (ALKYL (4W) ESTER) (P) (FATT
L9           65 S (FATTY (W) ACID (W) METHYL (W) ESTER#) (6S) REFLUX?
L10          10 S L9 AND (ESTERIFICATION OR PREESTERIFICATION OR ESTERIFY)
L11         595 S (FATTY (W) ACID (W) METHYL (W) ESTER#) (6S) SOLVENT
L12         136 S (FATTY (W) ACID (W) METHYL (W) ESTER?) (9A) SOLVENT?
L13          20 S (FAT OR OIL) (5A) METHANOL (S) (ACID (4W) CATALYST) (P) (FATT
L14           0 S L13 AND L12
L15           2 S L13 AND SOLVENT

=> s l1 and solvent?
L16          21 L1 AND SOLVENT?

=> d l16 1-10 ibib abs

L16  ANSWER 1 OF 21  CAPLUS  COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER:         2009:1521663  CAPLUS
TITLE:                    Lipid analysis via HPLC with a charged aerosol
                          detector
AUTHOR(S):                Moreau, Robert A.
CORPORATE SOURCE:         Crop Conversion Science and Engineering Research Unit,
                          Agricultural Research Service, U.S. Department of
                          Agriculture, Eastern Regional Research Center,
                          Wyndmoor, PA, 19038, USA
SOURCE:                   Lipid Technology (2009), 21(8/9), 191-194
                          CODEN: LITEEI; ISSN: 0956-666X
PUBLISHER:                Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE:            Journal; General Review
LANGUAGE:                 English
AB   Most lipid exts. are a mixture of saturated and unsatd. mols.  Therefore, the
     most successful high performance liquid chromatog. (HPLC) detectors for the
     quant. anal. of lipids have involved the use of "universal" or "mass"
     detectors such as flame ionization detectors and evaporative light
     scattering detectors.  Recently a new type of HPLC "universal" detector, a
     charged aerosol detector (CAD), was developed and is now com. available.
     This detection method involves nebulizing the HPLC column effluent, evaporating
     the solvents, charging the aerosol particles and measuring the
     current from the charged aerosol flux.  During the approx. four years that
     the charged aerosol detector has been com. available, several publications
     have described HPLC-CAD methods for lipid anal.  The most common lipids
     can be quant. analyzed via HPLC-CAD except for some volatile lipids such
     as common fatty acid Me esters and
     short chain free fatty acids (<C16).  The
     major results of these publications will be summarized in this report.
REFERENCE COUNT:          6     THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
                                RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16  ANSWER 2 OF 21  CAPLUS  COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER:         2008:1445870  CAPLUS
DOCUMENT NUMBER:          150:101741
TITLE:                    Rapid In Situ Transesterification of Sunflower Oil
AUTHOR(S):                Zeng, Jianli; Wang, Xiaodong; Zhao, Bing; Sun,
                          Jingcan; Wang, Yuchun
CORPORATE SOURCE:         National Key Laboratory of Biochemical Engineering,
                          Institute of Process Engineering, Chinese Academy of
                          Sciences, Beijing, 100190, Peop. Rep. China
SOURCE:                   Industrial & Engineering Chemistry Research (2009),
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48(2), 850-856
CODEN: IECRED; ISSN: 0888-5885
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A rapid in situ transesterification process of sunflower oil with methanol assisted by diethoxymethane (DEM) is described. DEM served as both extraction solvent and reaction promoter in the process. The effects of moisture content of sunflower seeds, catalyst category, molar ratio of catalyst/oil, molar ratio of methanol/oil, molar ratio of DEM/oil, reaction time, reaction temperature, and agitation speed on the in situ transesterification were studied. The most important factors which influenced the crude biodiesel yield, free fatty acid (FFA) content, and fatty acid Me ester (FAME) purity were the molar ratio of DEM/oil, molar ratio of catalyst/oil, and molar ratio of catalyst/oil, resp. An empirical model of the rapid in situ transesterification process was established and used to determine the optimal reaction conditions. When the in situ transesterification was carried out at the molar ratio of catalyst/oil of 0.5:1, the molar ratio of methanol/oil of 101.39:1, the molar ratio of DEM/oil of 57.85:1, the agitation speed of 150 rpm, and reaction temperature of 20°, a product containing 97.7% FAME and 0.74% FFA was obtained within 13 min.

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)
REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 3 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2008:829408 CAPLUS
DOCUMENT NUMBER: 149:106876
TITLE: Manufacture of high-purity fatty acid alkyl esters in low cost and improved yield
INVENTOR(S): Oku, Tomoji; Nonokuchi, Masanori; Izumi, Hiroko; Tachibana, Atsushi
PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd., Japan; Research Institute for Innovative Technology for the Earth (Rite)
SOURCE: Jpn. Kokai Tokkyo Koho, 18pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008156576	A	20080710	JP 2006-350201	20061226
PRIORITY APPLN. INFO.:			JP 2006-350201	20061226

AB The esters for fuels, food, cosmetics, pharmaceuticals, etc., are manufactured from monoglyceride-containing crude fatty acid alkyl esters by steps including extraction of the monoglycerides with mixed solvents containing glycerin and other alcs. Thus, crude fatty acid Me ester prepared from palm oil and MeOH was shaken with glycerin and MeOH to give a product containing glycerin 0.2, fatty acid Me ester 94.7, free fatty acid 2.9, and monoglyceride 0.5 weight%.

L16 ANSWER 4 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2008:712419 CAPLUS
DOCUMENT NUMBER: 151:82012
TITLE: Separation of acylglycerols, FAME and FFA in biodiesel by size exclusion chromatography
AUTHOR(S): Kittirattanapiboon, Kanisa; Krisnangkura, Kanit
CORPORATE SOURCE: Biochemical Technology Division, School of Bioresources and Technology, King Mongkut's University of Technology Thonburi, Bangkok, Thailand
SOURCE: European Journal of Lipid Science and Technology (2008), 110(5), 422-427
CODEN: EJLTFM; ISSN: 1438-7697
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Size-exclusion chromatog. separates solutes according to their mol. sizes. Free fatty acids (FFA), fatty acid Me esters (FAME) and monoacylglycerols (MG) of vegetable oils or animal fats have very close mol. sizes and they cannot be baseline-separated on a single Phenogel column (100 Å, 300 mm + 7.8 mm ID, 5 μm) by using THF as the mobile phase. When toluene is used as the mobile phase, triacylglycerols (TG), diacylglycerols (DG), MG and FAME are well separated but there is no baseline resolution between DG and FAME. In addition, the elution order of MG and FAME is reversed. However, baseline separation of all the above lipid classes can be achieved by using toluene containing THF, acetone, dichloromethane, Et acetate or acetic acid as the solvent modifier. Acetic acid (0.25%) as the solvent modifier gives the best resolution and all the reference peaks are sym. The detection limit of each class of lipids is 0.1 μg. The correlation coefficient values (between 1 and 100 μg) of all the lipid classes are better than 0.99. Thus, the determination of biodiesel products in the biodiesel reactor is very much simplified.
OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 5 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2008:60845 CAPLUS
DOCUMENT NUMBER: 150:401981
TITLE: Recovery of γ-oryzanol from biodiesel residue
AUTHOR(S): Kasim, Novy S.; Chen, Hong; Ju, Yi-Hsu
CORPORATE SOURCE: Department of Chemical Engineering, National Taiwan University of Science and Technology, Taipei, 10607, Taiwan
SOURCE: Journal of the Chinese Institute of Chemical Engineers (2007), 38(3-4), 229-234
CODEN: JCICAP; ISSN: 0368-1653
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB γ-Oryzanol has important applications in food, cosmetic and pharmaceutical industries. The objective of this study is to isolate γ-oryzanol from residue obtained during the production of biodiesel from rice bran oil. Using rice bran oil as the feedstock, the content of γ-oryzanol could be raised to 16% by steps, which include degumming and dewaxing, acid-catalyzed esterification and vacuum distillation More than

95% low-b.p. components, such as free fatty acid and fatty acid Me ester (biodiesel), were obtained as the distillate. After applying solvent extraction to the residue, γ-oryzanol content was increased from 16 to 35% with a recovery of 88%. Subsequent use of soxhlet extraction raised γ-oryzanol content to 47% with a recovery of 97%. Finally, after applying silica gel column chromatog., γ-oryzanol content was 83.79% with a recovery of 81.75%. The overall recovery was 69.82%.

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 6 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2007:1395949 CAPLUS
DOCUMENT NUMBER: 148:36390
TITLE: Production of biodiesel and glycerin from high free fatty acid feedstocks
INVENTOR(S): Jackam, John P.; Pierce, Joel M.; Fahrenbruck, Frank S.
PATENT ASSIGNEE(S): Komatsu Ltd., Japan
SOURCE: U.S. Pat. Appl. Publ., 23 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 20070277429	A1	20071206	US 2004-766740		20040126
US 20070277430	A1	20071206	US 2006-504828		20060815
US 20070277432	A1	20071206	US 2007-893019		20070814
PRIORITY APPLN. INFO.:			US 2003-443049P	P	20030127
			US 2004-537251P	P	20040115
			US 2004-766740	A2	20040126
			US 2006-504828	A2	20060815

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Disclosed is a system and method for converting a high free fatty acid grease feedstock to biodiesel. The process comprises a glycerolysis reaction to convert free fatty acids to glycerides and a base catalyzed transesterification reaction to produce fatty acid Me esters and glycerin in the absence of solvents. In preferred embodiments, both glycerin and methanol are recycled. The process can process a feedstock containing up to 100% free fatty acid content to produce biodiesel and glycerin with minimal waste generation.

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L16 ANSWER 7 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2007:1232516 CAPLUS
DOCUMENT NUMBER: 148:80953
TITLE: Esterification of free fatty acids in sunflower oil over solid acid catalysts using batch and fixed bed-reactors

AUTHOR(S): Ni, J.; Meunier, F. C.
CORPORATE SOURCE: CenTACat, School of Chemistry and Chemical Engineering, Queen's University Belfast, Belfast, BT9 5AG, UK
SOURCE: Applied Catalysis, A: General (2007), 333(1), 122-130 CODEN: ACAGE4; ISSN: 0926-860X
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The esterification of free fatty acids (FFA) found in vegetable oils with CH3OH using a solid catalyst is a promising method to convert FFA into valuable fatty acid Me ester (FAME, biodiesel) and obtain a FFA-free oil that can be further trans-esterified using alkali bases. Active and durable solid catalysts were evaluated for esterification of palmitic acid (PA, C16H32O2) dissolved in com. sunflower oil, with CH3OH. Contrary to expts. realized at high dilution in solvents or in pure FFA medium, in which methanol is fully soluble, lack of full miscibility occurred. A stirred batch reactor and a recirculating system with a fixed bed-reactor were used to study the process. A silica-supported Nafion resin (SAC-13) was the most promising catalyst, requiring no activation, contrary to sulfated zirconia (SZ) that must be activated above 400°. The SZ material could not be fully regenerated after use because of sulfate group leaching and the fact that adsorbed oil decomposed to form carbonaceous deposits at higher temps. needed to activate the sample by dehydration. The poisoning of SAC-13 by water was mild and simply reversed using a moisture-free feed or purging with a dry gas. The activity of SAC-13 measured with the batch reactor was essentially equal to that obtained using a fixed bed-reactor in a recirculating system and no rate difference was observed whether an extrudate or a powder form of the sample was used. No rate differences were also observed at various stirring rates. These observations stress that no mass transport limitations were taking place. The TOF (based on the number of S atoms) obtained over SAC-13 was about seven times lower than that obtained using concentrated sulfuric acid. The possibility to use a fixed bed reactor paves the way for simplified studies of similar systems in terms of (1) the separation of the catalyst and product and (2) the mech. stability of the catalyst particles. The combination of SAC-13 and a fixed bed-reactor system could lead to a practical and cost-effective FFA removal unit in front of typical oil transesterification units.
OS.CITING REF COUNT: 28 THERE ARE 28 CAPLUS RECORDS THAT CITE THIS RECORD (28 CITINGS)
REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 8 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2003:910143 CAPLUS
TITLE: Separation of fatty acids and amides using argentation thin-layer chromatography
AUTHOR(S): Leigh, DiCicco; Sultana, Tamanna; Johnson, Mitchell
CORPORATE SOURCE: Duquesne University, Pittsburgh, PA, USA
SOURCE: Abstracts, 35th Central Regional Meeting of the American Chemical Society, Pittsburgh, PA, United States, October 19-22 (2003), 287. American Chemical Society: Washington, D. C. CODEN: 69ETWY
DOCUMENT TYPE: Conference; Meeting Abstract

LANGUAGE: English
AB Simple and inexpensive, thin-layer chromatog. (TLC) is a process by which organic mols., such as fatty acids and amides, can be separated based upon polarity. The technique is widely used to visualize cellular components, and provides a suitable foundation for more precise methods of quantification. Argentation TLC (Ag-TLC) uses the pi-bond binding properties of the silver ion to sep. fatty compds. according to the number of unsatd. sites they contain. Given its success in separating fatty acid Me esters, argentation TLC was used in this study was to sep. a given saturated free fatty acid and its mono-, di-, and tri-unsatd. Forms from one another. A mixture of C18 saturated and unsatd. fatty acids separated on a high-performance plate using a solvent mixture of hexane:ether:acetone 40:35:15 (volume/volume/v). Amides, though slight more problematic than acids, have separated somewhat under similar conditions, however both the argentation process itself and the amide visualizations are currently being improved at this time.

L16 ANSWER 9 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1999:704331 CAPLUS
DOCUMENT NUMBER: 132:63183
TITLE: Lipase-catalyzed solid-phase synthesis of sugar fatty acid esters. Removal of byproducts by azeotropic distillation
AUTHOR(S): Yan, Y.; Bornscheuer, U. T.; Cao, L.; Schmid, R. D.
CORPORATE SOURCE: Inst. Technical Biochemistry, Univ. Stuttgart, Stuttgart, D-70569, Germany
SOURCE: Enzyme and Microbial Technology (1999), 25(8-9), 725-728
CODEN: EMTED2; ISSN: 0141-0229
PUBLISHER: Elsevier Science Ireland Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 132:63183
AB 6-O-β-D(+)-Glucose fatty acid monoesters were synthesized from non-activated β-D(+)-glucose and fatty acids or fatty acid Me esters (C8, C16, C18) with lipase from Candida antarctica B immobilized on polypropylene EP 100. Highest yields (≤90%) were achieved in Et Me ketone or acetone as solvent by conducting the reactions under reduced pressure at 60° in order to remove the byproducts water (produced in the esterification of free fatty acids) or MeOH (produced in the transesterification of fatty acid Me esters) by creating an azeotropic mixture Both solvents could be easily removed from the reaction mixture and are regarded as biocompatible in the preparation of food additives. In case of caprylic acid, highest conversion (76%) was achieved at 25°.
OS.CITING REF COUNT: 46 THERE ARE 46 CAPLUS RECORDS THAT CITE THIS RECORD (46 CITINGS)
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 10 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1999:172220 CAPLUS
DOCUMENT NUMBER: 130:225157
TITLE: Crambe abyssinica oil and its derivatives as renewable

lubricants: synthesis and characterization of different esters based on Crambe fatty acids
AUTHOR(S): Bondioli, P.; Inzaghi, L.; Postorino, G.; Quartuccio, P.
CORPORATE SOURCE: Stazione Sperimentale per le Industrie degli Oli e dei Grassi, Milan, Italy
SOURCE: Synthetic Lubrication (1999), 15(4), 271-283
CODEN: SYLUEB; ISSN: 0265-6582
PUBLISHER: Leaf Coppin Publishing Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The authors have studied the possibility of using Crambe abyssinica oil as a starting material for synthetic lubricants, and in this paper the procedures for the preparation of monoesters from Me, Et, iso-Pr, and 2-ethylhexyl alc., as well as diesters from neopentyl glycol, triesters from trimethylolpropane and tetraesters from pentaerythritol, are described. The different reactions were set up using free fatty acids, Me esters, and Crambe oil as starting materials. All reactions were carried out in a solvent-free medium, using normally available catalysts and under exptl. conditions which could easily be scaled up to industrial level. All the products obtained, along with the refined Crambe abyssinica oil used as a reference, were analyzed for viscosity, viscosity index, low-temperature behavior and oxidative and hydrolytic stability. Results of tests, such as four-ball machine and Noack, are reported. Several products covering a wide range of different applications can be obtained from the basic Crambe abyssinica oil, and, furthermore, the chemical modification of the Crambe abyssinica oil can, in some cases, improve thermal and hydrolytic sensitivity and even the tribol. properties.
OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)
REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d l16 11-21 ibib abs

L16 ANSWER 11 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1997:514175 CAPLUS
DOCUMENT NUMBER: 127:164153
ORIGINAL REFERENCE NO.: 127:31773a,31776a
TITLE: Crambe abyssinica oil and its derivatives as renewable lubricants: synthesis and characterization of different esters based on Crambe fatty acids
AUTHOR(S): Bondioli, P.; Inzaghi, L.; Postorino, G.; Quartuccio, P.
CORPORATE SOURCE: STAZIONE SPERIMENTALE PER LE INDUSTRIE DEGLI OLI E DEI GRASSI, Milan, Italy
SOURCE: Rivista Italiana delle Sostanze Grasse (1997), 74(4), 137-141
CODEN: RISGAD; ISSN: 0035-6808
PUBLISHER: Stazione Sperimentale per le Industrie degli Oli e dei Grassi
DOCUMENT TYPE: Journal
LANGUAGE: English
AB As a part of our ongoing research under the Italian PRisCA (Research

Project on Alternative Cultures) project we studied the possibility of using Crambe abyssinica oil as a starting material for synthetic lubricants. In this paper the procedures for the preparation of monoesters from methyl-, ethyl-, isopropyl- and 2-ethylhexyl alc. as well as diesters from neopentyl glycol, triesters from trimethylol propane and tetraesters from pentaerhytritol are described. The different reactions were set up using free fatty acids, Me
esters and Crambe oil as starting materials. All reactions were carried out in a solvent-free medium, using normally available catalysts and under exptl. conditions which could easily be scaled up to industrial level. All the obtained products along with the refined Crambe abyssinica oil used as a reference were analyzed for viscosity, viscosity index, cold behavior, oxidative and hydrolytic stability. Results of applicative tests such as four balls machine and Noack test are reported. All the results show that several products covering a wide range of different applications can be obtained from the basic Crambe abyssinica oil and furthermore the chemical modification of the Crambe abyssinica oil can in some cases improve the thermal and hydrolytic sensitivity and even the tribol. properties.

OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

L16 ANSWER 12 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1994:7124 CAPLUS
DOCUMENT NUMBER: 120:7124
ORIGINAL REFERENCE NO.: 120:1615a,1618a
TITLE: Lipase-catalyzed synthesis of partial glyceride
AUTHOR(S): Akoh, Casimir C.
CORPORATE SOURCE: Dep. Food Sci. Technol., Univ. Georgia, Athens, GA, 30602-7610, USA
SOURCE: Biotechnology Letters (1993), 15(9), 949-54
CODEN: BILED3; ISSN: 0141-5492
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 120:7124

AB Mucor miehei (IM 20) and Candida antarctica (SP 382) lipases were used for esterification of free fatty acids in the
absence of organic solvent or transesterification of fatty
acid Me esters in hexane with isopropylidene
glycerols. Acid-catalyzed cleavage of the isopropylidene groups resulted in the formation of monoacylglycerol (MAG) and diacylglycerol (DAG). Both oleic (18:1 n-9) and eicosapentaenoic acid, EPA (20:5 n-3) were successfully incorporated into glycerides. Total acyl donor conversion ranged from 46.9-96.9% with MAG content of up to 88.5%.

OS.CITING REF COUNT: 25 THERE ARE 25 CAPLUS RECORDS THAT CITE THIS RECORD (25 CITINGS)

L16 ANSWER 13 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1989:455970 CAPLUS
DOCUMENT NUMBER: 111:55970
ORIGINAL REFERENCE NO.: 111:9505a,9508a
TITLE: Rapid preparation of fatty acid methyl esters from fats with trimethylsulfonium hydroxide or sodium methylate
AUTHOR(S): Schulte, E.; Weber, Karin
CORPORATE SOURCE: Inst. Lebensmittelchem., Univ. Muenster, Muenster, D-4400, Fed. Rep. Ger.

SOURCE: Fett Wissenschaft Technologie (1989), 91(5), 181-3
CODEN: FWTEEG; ISSN: 0931-5985
DOCUMENT TYPE: Journal
LANGUAGE: German
AB Methods are described for the preparation of fatty acid Me esters for gas chromatog. anal. of fats and oils. The 1st, based on the method of W. Butte (1983), involves transesterification with trimethylsulfonium hydroxide (TMSH) in MeOH, prepared from the com. iodide salt by passage through a strongly basic anion-exchange column. Triglycerides at room temperature react with TMSH to form fatty acid Me esters, and free fatty acids, when present, form the corresponding salts. Following injection into a gas chromatog. column at 250°, excess reagent is pyrolyzed to MeOH and Me2S, and fatty acid salts are pyrolyzed to the Me esters as well as Me2S. The method is particularly advantageous in that the TMSH solution is simply added to sample fat solns. (either in 1,1,2-trichloro-1,2,2-trifluoroethane or tert-Bu Me ether); heating or removal of unreacted reagent is not required. Butyric acid may also be determined by this method, with Me valerate as internal standard, but since the MeOH peak obtained may interfere with some chromatog. columns, a 2nd method, derivatization with NaOMe in MeOH, is also described. In this method, heating or neutralization is not required since the reagent is practically insol. in the sample solvent (petroleum ether).
OS.CITING REF COUNT: 42 THERE ARE 42 CAPLUS RECORDS THAT CITE THIS RECORD (42 CITINGS)

L16 ANSWER 14 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1988:71489 CAPLUS
DOCUMENT NUMBER: 108:71489
ORIGINAL REFERENCE NO.: 108:11767a,11770a
TITLE: Determination of monoenoic fatty acid double bond position by permanganate-periodate oxidation followed by high-performance liquid chromatography of carboxylic acid phenacyl esters
AUTHOR(S): Longmuir, Kennth J.; Rossi, Mary E.; Resele-Tiden, Christine
CORPORATE SOURCE: Coll. Med., Univ. California, Irvine, CA, 92717, USA
SOURCE: Analytical Biochemistry (1987), 167(2), 213-21
CODEN: ANBCA2; ISSN: 0003-2697
DOCUMENT TYPE: Journal
LANGUAGE: English
AB This investigation was carried out to develop methods for a reversed-phase HPLC anal. of the monocarboxylic and dicarboxylic acids produced by permanganate-periodate oxidation of monoenoic fatty acids. Oxidation reactions were performed using [U-14C]oleic acid and [U-14C]oleic acid Me ester to measure reaction yields and product distributions. The 14C-labeled oxidation products consisted of nearly equal amts. of monocarboxylic and dicarboxylic acid (or dicarboxylic acid monomethyl ester), with few side products (yield >98%). Conversion of the carboxylic acids to phenacyl esters proceeded to completion. HPLC of carboxylic acid phenacyl esters was performed using a C18 column with a linear solvent gradient beginning with MeCN/water (1:1) and ending with 100% MeCN. Excellent resolution was achieved for all components of a mixture of C5 through C12 monocarboxylic acid phenacyl esters and C6 through C11 dicarboxylic acid phenacyl esters. Resolution was also achieved for all components of a mixture

of C5 through C12 monocarboxylic acid phenacyl esters and C6 through C11 dicarboxylic acid monomethyl, monophenacyl esters. The resolution obtained by HPLC demonstrates that, for a wide range of monoenoic fatty acids, both products of a permanganate-periodate oxidation can be identified on a single chromatogram. Free fatty acids and fatty acid Me esters were analyzed with equal success. Neither the oxidation nor the esterification reaction caused detectable hydrolysis of Me ester. The method is illustrated for free acids and Me esters of 14:1 (cis-9), 16:1 (cis-9), 18:1 (cis-6), 18:1 (cis-9), and 18:1 (cis-11).

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L16 ANSWER 15 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1985:575753 CAPLUS
DOCUMENT NUMBER: 103:175753
ORIGINAL REFERENCE NO.: 103:28215a,28218a
TITLE: Ultrastructure and chemical composition of the outer layers of the cuticle of the pea aphid Acyrthosiphon pisum (Harris)
AUTHOR(S): Brey, P. T.; Ohayon, H.; Lesourd, M.; Castex, H.; Roucache, J.; Latge, J. P.
CORPORATE SOURCE: Lutte Biol. Contre Insectes, Inst. Pasteur, Paris, 75015, Fr.
SOURCE: Comparative Biochemistry and Physiology, Part A: Molecular & Integrative Physiology (1985), 82A(2), 401-11
CODEN: CBPAB5; ISSN: 0300-9629
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Ultrastructural observations of the integument showed 3 layers: outer epicuticle, inner epicuticle, and procuticle. Use of organic solvents for cuticular lipid removal modified the integrity of the integument. Lipid exts. of the pea aphid cuticle yielded 27% hydrocarbons, 20% alkyl esters, 14% fatty acid Me esters, 13% triacylglycerols, 16% free fatty acids, and 10% n-alcs. Extrinsic cuticular components included free amino acids and monosaccharides originating from aphid excrement (honeydew).

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L16 ANSWER 16 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1983:103736 CAPLUS
DOCUMENT NUMBER: 98:103736
ORIGINAL REFERENCE NO.: 98:15769a,15772a
TITLE: Separation and quantitation of free fatty acids and fatty acid methyl esters by reverse phase high pressure liquid chromatography
AUTHOR(S): Aveldano, Marta I.; VanRollins, Mike; Horrocks, Lloyd A.
CORPORATE SOURCE: Dep. Physiol. Chem., Ohio State Univ., Columbus, OH, 43210, USA
SOURCE: Journal of Lipid Research (1983), 24(1), 83-93
CODEN: JLPRAW; ISSN: 0022-2275
DOCUMENT TYPE: Journal

LANGUAGE: English
AB Reverse-phase high-pressure liquid chromatog. (HPLC) on octadecylsilyl columns separates mixts. of either free fatty acids or fatty acid Me esters prepared from mammalian tissue phospholipids. MeCN-H2O mixts. are used for the elution of esters. Aqueous phosphoric acid is substituted for H2O for the separation of the free acids. Unsatd. compds. are detected and quantitated by their absorption at 192 nm. Sats. are detected better at 205 nm. The order of elution of fatty acids in complex mixts. varies as a function of MeCN concentration At any given concentration, some compds. overlap. However, by varying the solvent strength, any fatty acid of interest can be resolved including many geometrical and positional isomers. Me esters prefractionated according to unsatn. by argentation TLC are rapidly and completely separated by elution with MeCN alone. Argentation TLC-reverse phase HPLC can be used as an anal. as well as a preparative procedure. Octylsilyl columns are used for rapid resolution and improved detection of minor or low UV-absorbing components in the fractions. For example, monoenoic fatty acids ≤32 carbons have been detected in bovine brain glycerophospholipids. Specific radioactivities of 3H- and 14C-labeled fatty acids and the distribution of radioactivity among acyl groups from complex lipids are measured. The method is not recommended for complete compositional anal., but is useful for detns. of specific radioactivities during studies on turnover and metabolic conversions of labeled fatty acids.
OS.CITING REF COUNT: 51 THERE ARE 51 CAPLUS RECORDS THAT CITE THIS RECORD (51 CITINGS)

L16 ANSWER 17 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1972:431072 CAPLUS
DOCUMENT NUMBER: 77:31072
ORIGINAL REFERENCE NO.: 77:5171a,5174a
TITLE: Reversed-phase chromatography of fatty acids on hydrophobic Sephadex
AUTHOR(S): Beijer, Karin; Nystrom, Ernst
CORPORATE SOURCE: Dep. Chem., Karolinska Inst., Stockholm, Swed.
SOURCE: Analytical Biochemistry (1972), 48(1), 1-8
CODEN: ANBCA2; ISSN: 0003-2697
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A number of solvent systems are given for use in liquid -gel chromatog. with hydrophobic Sephadex. Since the solvents contain both polar components with a low affinity to the gel and less polar components with a higher affinity to the gel, a chromatog. system is obtained similar to reversed-phase partition. Examples are given of sepns. of free fatty acids and fatty acid Me esters. The influence of particle size, flow rate, and temperature is discussed.
OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L16 ANSWER 18 OF 21 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1964:470525 CAPLUS
DOCUMENT NUMBER: 61:70525
ORIGINAL REFERENCE NO.: 61:12303c-d
TITLE: The analysis of polyene fatty acids I.
AUTHOR(S): Wagner, Hildebert; Pohl, Peter

CORPORATE SOURCE: Univ., Munich, Germany
SOURCE: Biochemische Zeitschrift (1964), 340(3), 337-44
CODEN: BIZEA2; ISSN: 0366-0753
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB Polyunsatd. fatty acids of the brain were partially purified by esterification with diazomethane and crystallization of the esters of the saturated
fatty acids. The esters of the unsatd. fatty acids were converted to their Hg(II) adducts and chromatographed on thin-layer plates of silicic acid-silica mixed in proportions of 3:7. The solvent was iso-BuOH-HCOOH-H2O (100:0.5:15.7), and the fatty acids were made visible by spraying with a solution of diphenylcarbazone. Rf values were as follows: C22-hexaenoic, 0.06; C20-pentaenoic, 0.15; C16-tetraenoic and C22-pentenoic, 0.23; C18-tetraenoic, 0.30; C2O-tetraenoic, 0.38; C16-trienoic and C22-tetraenoic, 0.46; C18-trienoic, 0.54; C20-trienoic, 0.61; C16-dienoic, 0.66; C18-dienoic, 0.73; C16-monoenoic, 0.74; higher monoenoic acids, 0.77-0.82; saturated acids, 0.91-0.96. The free fatty acid Me esters were
regenerated from the separated Hg(II) adducts and identified by alkaline isomerization, by thin-layer chromatog. on plates of paraffin-impregnated silica with a solvent of HCOOH-CH3CN-Me2CO (2:2:1), and by hydrogenation followed by gas chromatog.

L16 ANSWER 19 OF 21 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2010) on STN
ACCESSION NUMBER: 2010:8658 AGRICOLA
DOCUMENT NUMBER: IND44302250
TITLE: Free-fatty acid profile obtained by enzymatic solvent-free hydrolysis of sunflower and soybean lecithins.
AUTHOR(S): Penci, Mar Ua C.; Constenla, Diana T.; Carelli, Amalia A.
AVAILABILITY: DNAL (TX501.F6)
SOURCE: Food chemistry, 2010 May 1 Vol. 120, no. 1 p. 332-338
Publisher: [Amsterdam]: Elsevier Science
ISSN: 0308-8146
NOTE: Includes references
DOCUMENT TYPE: Article; (ELECTRONIC RESOURCE)
FILE SEGMENT: Non-US
LANGUAGE: English
AB The free-fatty acid profile of sunflower and soybean lecithins generated by enzymatic hydrolysis was determined by capillary gas chromatography using the internal standard method. This procedure involves the previous lipid extraction, clean-up and fatty-acid methyl-esters
preparation. Different conventional methods commonly employed to calculate the hydrolysis degree in both substrates were compared. The fatty-acid profile of sunflower and soybean phospholipids and its initial acidity composition were chromatographically determined. Results from recovery studies were satisfactory (98% and 108% for soybean and sunflower, respectively). The effect of temperature (50 and 60 C) and pH conditions (pH 7 and pH 8) on lecithin-hydrolysis degree was evaluated, being temperature the most affecting parameter. The profile of the fatty acids liberated after hydrolysis depended on both the enzyme and the pH of

reaction mixture. Finally, the chromatographic methodology employed in this paper may be useful to study the lecithin enzymatic modification in order to produce emulsifiers with specific characteristics.

L16 ANSWER 20 OF 21 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2010) on STN

ACCESSION NUMBER: 2008:79407 AGRICOLA
DOCUMENT NUMBER: IND44060685
TITLE: Separation of acylglycerols, FAME and FFA in biodiesel by size exclusion chromatography.
AUTHOR(S): Kittirattanapiboon, Kanisa; Krisnangkura, Kanit
SOURCE: European journal of lipid science and technology, 2008 May Vol. 110, no. 5 p. 422-427
Publisher: Wiley-VCH Verlag
ISSN: 1438-7697
NOTE: Includes references
DOCUMENT TYPE: Article; (ELECTRONIC RESOURCE)
FILE SEGMENT: Non-US
LANGUAGE: English

AB Size-exclusion chromatography separates solutes according to their molecular sizes. Free fatty acids (FFA), fatty acid methyl esters (FAME) and monoacylglycerols (MG) of vegetable oils or animal fats have very close molecular sizes and they cannot be baseline-separated on a single Phenogel column (100 , 300 mm x 7.8 mm ID, 5 om) by using tetrahydrofuran (THF) as the mobile phase. When toluene is used as the mobile phase, triacylglycerols (TG), diacylglycerols (DG), MG and FAME are well separated but there is no baseline resolution between DG and FAME. In addition, the elution order of MG and FAME is reversed. However, baseline separation of all the above lipid classes can be achieved by using toluene containing THF, acetone, dichloromethane, ethyl acetate or acetic acid as the solvent modifier. Acetic acid (0.25%) as the solvent modifier gives the best resolution and all the reference peaks are symmetrical. The detection limit of each class of lipids is 0.1 og. The correlation coefficient values (between 1 and 100 og) of all the lipid classes are better than 0.99. Thus, the determination of biodiesel products in the biodiesel reactor is very much simplified.

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ACCESSION NUMBER: 94:23224 AGRICOLA
DOCUMENT NUMBER: IND20379327
TITLE: Lipase-catalyzed synthesis of partial glyceride.
AUTHOR(S): Akoh, C.C.
AVAILABILITY: DNAL (QR53.B56)
SOURCE: Biotechnology letters, Sept 1993. Vol. 15, No. 9. p. 949-954
Publisher: Middlesex : Science and Technology Letters.
CODEN: BILED3; ISSN: 0141-5492
NOTE: Includes references
PUB. COUNTRY: England; United Kingdom
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO

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LANGUAGE:                English
AB   Mucor miehei (IM 20) and Candida antarctica (SP 382) lipases were used for
     esterification of free  fatty acids in the
     absence of organic solvent or transesterification of
     fatty acid methyl esters   in hexane
     with isopropylidene glycerols. Acid catalyzed cleavage of the
     isopropylidene groups  resulted in the formation of monoacyl glycerol
     (MAG) and diacyl glycerol (DAG). Both oleic (18:1  n-9) and
     eicosapentaenoic acid, EPA (20:5 n-3) were successfully incorporated into
     glycerides.  Total acyl donor conversion ranged from 46.9-96.9% with MAG
     content of up to 88.5%.


=> d his

     (FILE 'HOME' ENTERED AT 11:58:43 ON 31 MAY 2010)

     FILE 'CAPLUS, AGRICOLA' ENTERED AT 11:59:02 ON 31 MAY 2010
L1          183 S (FREE (A) FATTY (A) ACID) (S) (METHYL (A) ESTER) (P) (FATTY (
L2           61 S L1 AND (ESTERIFICATION OR ESTERIFY)
L3            1 S L1 AND (PREESTERIFICATION)
L4            0 S (FAT OR OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHOL (9W)
L5            0 S (SOYBEAN (2A) OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHO
L6            1 S ESTERIFICATION (S) (REFLUX) (S) (FATTY (2A) ACID (2A) METHYL
L7            0 S (SOYBEAN (A) OIL) (S) METHANOL (S) (FATTY (2W) ACID (2W) METH
L8            1 S (SEED (3A) OIL) (S) METHANOL (S) (ALKYL (4W) ESTER) (P) (FATT
L9           65 S (FATTY (W) ACID (W) METHYL (W) ESTER#) (6S) REFLUX?
L10          10 S L9 AND (ESTERIFICATION OR PREESTERIFICATION OR ESTERIFY)
L11         595 S (FATTY (W) ACID (W) METHYL (W) ESTER#) (6S) SOLVENT
L12         136 S (FATTY (W) ACID (W) METHYL (W) ESTER?) (9A) SOLVENT?
L13          20 S (FAT OR OIL) (5A) METHANOL (S) (ACID (4W) CATALYST) (P) (FATT
L14           0 S L13 AND L12
L15           2 S L13 AND SOLVENT
L16          21 S L1 AND SOLVENT?

=> s (fatty (w) acid (w) methyl (w) ester?) (4a) (as (4w) solvent?)
L17           0 (FATTY (W) ACID (W) METHYL (W) ESTER?) (4A) (AS (4W) SOLVENT?)

=> d his

     (FILE 'HOME' ENTERED AT 11:58:43 ON 31 MAY 2010)

     FILE 'CAPLUS, AGRICOLA' ENTERED AT 11:59:02 ON 31 MAY 2010
L1          183 S (FREE (A) FATTY (A) ACID) (S) (METHYL (A) ESTER) (P) (FATTY (
L2           61 S L1 AND (ESTERIFICATION OR ESTERIFY)
L3            1 S L1 AND (PREESTERIFICATION)
L4            0 S (FAT OR OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHOL (9W)
L5            0 S (SOYBEAN (2A) OIL) (3W) (FREE (A) FATTY (A) ACID) (3W) ALCOHO
L6            1 S ESTERIFICATION (S) (REFLUX) (S) (FATTY (2A) ACID (2A) METHYL
L7            0 S (SOYBEAN (A) OIL) (S) METHANOL (S) (FATTY (2W) ACID (2W) METH
L8            1 S (SEED (3A) OIL) (S) METHANOL (S) (ALKYL (4W) ESTER) (P) (FATT
L9           65 S (FATTY (W) ACID (W) METHYL (W) ESTER#) (6S) REFLUX?
L10          10 S L9 AND (ESTERIFICATION OR PREESTERIFICATION OR ESTERIFY)
L11         595 S (FATTY (W) ACID (W) METHYL (W) ESTER#) (6S) SOLVENT
L12         136 S (FATTY (W) ACID (W) METHYL (W) ESTER?) (9A) SOLVENT?
L13          20 S (FAT OR OIL) (5A) METHANOL (S) (ACID (4W) CATALYST) (P) (FATT
L14           0 S L13 AND L12
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L15            2 S L13 AND SOLVENT
L16           21 S L1 AND SOLVENT?
L17            0 S (FATTY (W) ACID (W) METHYL (W) ESTER?) (4A) (AS (4W) SOLVENT?

=> log off
ALL L# QUERIES AND ANSWER SETS ARE DELETED AT LOGOFF
LOGOFF? (Y)/N/HOLD:y
STN INTERNATIONAL LOGOFF AT 12:38:54 ON 31 MAY 2010
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